AMENDMENTS TO THE CLAIMS

1. ~~Cancelled~~

2. (Currently Amended) ~~The data location determining method according to Claim 9, wherein~~ A compiler apparatus for generating an instruction code composed of instruction sets each including an instruction that designates an address of a data item stored in a memory area, comprising:

an allocation data selecting unit operable to sequentially select a data item from a group X composed of a plurality of data items each having a plurality of data attributes, the selection being made based on ~~the first criterion is~~ a descending order of an alignment of each data item, the alignment being a value representing a strength of a constraint on an allocatable location of a corresponding data item in a memory area[[,]];

~~the allocation data selecting unit selects a data item in the descending order of an alignment of each data item,~~

an allocation judging unit operable to judge, each time a data item is selected, whether the selected data item is allocatable within a predetermined address range from the starting address of the memory area, which corresponds to the address range being accessible with a single instruction; and

an exclusion data specifying unit operable to specify, when the judgment is negative, a data item to be excluded from the group X out of all data items having been selected, the specification being made based on ~~the second criterion is~~ a descending order of a size of each data item, ~~and the exclusion data specifying unit specifies a data item in the descending order of a size of each data item~~ wherein

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the allocation data selecting unit repeats the selection from data items that remain in the group X after excluding all data items having been specified to be excluded, until all the remaining data items are judged to be allocatable to the memory area.

3. (Original) The compiler apparatus according to Claim 2, further comprises

a re-allocation data selecting unit operable to sequentially select, after the allocation data selecting unit completes the selection, a data item from the excluded data items, the selection by the re-allocation data selecting unit being made in an ascending order of a size of each data item, wherein

the allocation judging unit further judges, each time a data item is selected by the re-allocation data selecting unit, the selected data item is allocatable to the memory area.

4. (Currently Amended) The compiler apparatus according to Claim [[1]] 2, wherein

the allocation data selecting unit further sequentially selects, after completing the selection, a data item from the excluded data items, the further-selection being made based on the first criterion a descending order of an alignment of each data item, the alignment being a value representing a strength of a constraint on an allocatable location of a corresponding data item in a memory area,

the allocation judging unit further judges, each time a data item is further-selected, whether the further-selected data item is allocatable to within a predetermined address range from the starting address of another memory area, which corresponds to the address range being accessible with a single instruction,

the exclusion data specifying unit further specifies, when the further judgment is negative, a data item to be re-excluded from the excluded data items out of all data items having been further-selected, the further specification being made based on ~~the second criterion~~ a descending order of a size of each data item, and

the allocation data selecting unit repeats the further-selection from data items that remain after excluding all data items having been further specified to be re-excluded, until all the remaining data items are judged to be allocatable to said another memory area, and

when there are any re-excluded data items after completing the further-selection,

the allocation data selecting unit further selects a data item sequentially from the re-excluded data items,

the allocation judging unit further judges, each time a data item is further selected from the re-excluded data items, whether the further-selected data item is allocatable ~~to~~ within a predetermined address range from the starting address of a yet another memory area, which corresponds to the address range being accessible with a single instruction, and

the exclusion data specifying unit further specifies a data item when the further judgment is negative.

5. (Canceled).

6. (Currently Amended) The compiler apparatus according to Claim [[4]] 2, wherein ~~the first criterion is~~ the allocation data selecting unit further sequentially selects, after completing the selection, a data item from the excluded data items, the further selection being made based on a descending order of an alignment of each data item, the alignment being a value

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representing a strength of a constraint on an allocatable location of a corresponding data item in a memory area, ~~and~~

the allocation judging unit further judges, each time a data item is further selected, whether the further selected data item is allocatable within a predetermined address range from the starting address of another memory area, which corresponds to the address range being accessible with a single instruction,

the exclusion data specifying unit further specifies, when the further judgment is negative, a data item to be re-excluded from the excluded data items out of all data items having been further selected, the further specification being made based on ~~the second criterion is~~ an ascending order of a reference frequency of each data item, the reference frequency representing how frequently a corresponding data item is referenced,

the allocation data selecting unit repeats the further-selection from data items that remain after excluding all data items having been further specified to be re-excluded, until all the remaining data items are judged to be allocatable to said another memory area, and

when there are any re-excluded data items after completing the further selection,

the allocation data selecting unit further selects a data item sequentially from the re-excluded data items,

the allocation judging unit further judges, each time a data item is further selected from the re-excluded data items, whether the further-selected data item is allocatable within a predetermined address range from the starting address of a yet another memory area, which corresponds to the address range being accessible with a single instruction, and

the exclusion data specifying unit further specifies a data item when the further judgment is negative.

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7. (Currently Amended) ~~The compiler apparatus according to Claim 1, wherein~~ <u>A</u> <u>compiler apparatus for generating an instruction code composed of instruction sets each</u> <u>including an instruction that designates an address of a data item stored in a memory area,</u> <u>comprising:</u>

<u>an allocation data selecting unit operable to sequentially select a data item from a group</u> <u>X composed of a plurality of data items each having a plurality of data attributes, the selection</u> <u>being made based on</u> ~~the first criterion is~~ a descending order of an alignment of each data item, the alignment being a value representing a strength of a constraint on an allocatable location of a corresponding data item in a memory area[[,]]<u>;</u>

~~the allocation data selecting unit selects a data item in the descending order of an~~ ~~alignment of each data item,~~

<u>an allocation judging unit operable to judge, each time a data item is selected, whether</u> <u>the selected data item is allocatable within a predetermined address range from the starting</u> <u>address of the memory area, which corresponds to the address range being accessible with a</u> <u>single instruction; and</u>

<u>an exclusion data specifying unit operable to specify, when the judgment is negative, a</u> <u>data item to be excluded from the group X out of all data items having been selected, the</u> <u>specification being made based on</u> ~~the second criterion is~~ an ascending order of a reference frequency of each data item, the reference frequency representing how frequently a corresponding data item is referenced, [[and]] <u>wherein</u>

~~the exclusion data specifying unit specifies a data item in the ascending order of a~~ ~~reference frequency of each data item~~

the allocation data selecting unit repeats the selection from data items that remain in the group X after excluding all data items having been specified to be excluded, until all the remaining data items are judged to be allocatable to the memory area.

8. (Currently Amended) The compiler apparatus according to Claim 7, further comprising a re-allocation data selecting unit operable to sequentially select, after the allocation data selecting unit completes the selection, a data item from the excluded data items, the selection by the re-allocation data selecting unit being made in a descending order of a reference frequency of each data item, wherein

the allocation judging unit further judges, each time a data item is selected by the re-allocation data selecting unit, whether the selected data item is allocatable ~~to~~ within a predetermined address range from the starting address of the memory area, which corresponds to the address range being accessible with a single instruction.

9. (Canceled).

10. (Currently Amended) ~~The data location determining method according to Claim 9, wherein~~ A machine-implemented data location determining method for a compiler apparatus to generate an instruction code composed of instruction sets each including an instruction that designates an address of a data item in a memory area, the method comprising:

an allocation data selecting step of sequentially selecting a data item from a group X composed of a plurality of data items each having a plurality of data attributes, the selection being made based on ~~the first criterion is~~ a descending order of an alignment of each data item,

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the alignment being a value representing a strength of a constraint on an allocatable location of a corresponding data item in a memory area[[,]];

~~the allocation data selecting step selects a data item in the descending order of an alignment of each data item,~~

an allocation judging step of judging, each time a data item is selected, whether the selected data item is allocatable within a predetermined address range from the starting address of the memory area, which corresponds to the address range being accessible with a single instruction; and

an exclusion data specifying step of specifying, when the judgment is negative, a data item to be excluded from the group X out of all data items having been selected, the specification being made based on ~~the second criterion is~~ a descending order of a size of each data item, [[and]] wherein

~~the exclusion data specifying step specifies a data item in the descending order of a size of each data item~~

the allocation data selecting step repeats the selection from data items that remain in the group X after excluding all data items having been specified to be excluded, until all the remaining data items are judged to be allocatable to the memory area.

11. (Currently Amended) ~~The data location determining method according to Claim 9, wherein~~ A machine-implemented data location determining method for a compiler apparatus to generate an instruction code composed of instruction sets each including an instruction that designates an address of a data item stored in a memory area, the method comprising:

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an allocation data selecting step of sequentially selecting a data item from a group X composed of a plurality of data items each having a plurality of data attributes, the selection being made based on ~~the first criterion is~~ a descending order of an alignment of each data item, the alignment being a value representing a strength of a constraint on an allocatable location of a corresponding data item in a memory area[[,]];

~~the allocation data selecting step selects a data item in the descending order of an alignment of each data item,~~

an allocation judging step of judging, each time a data item is selected, whether the selected data item is allocatable within a predetermined address range from the starting address of the memory area, which corresponds to the address range being accessible with a single instruction; and

an exclusion data specifying step of specifying, when the judgment is negative, a data item to be excluded from the group X out of all data items having been selected, the specification being made based on ~~the second criterion is~~ an ascending order of a reference frequency of each data item, the reference frequency representing how frequently a corresponding data item is referenced, [[and]] wherein

~~the exclusion data specifying step specifies a data item in the ascending order of a reference frequency of each data item~~

the allocation data selecting step repeats the selection from data items that remain in the group X after excluding all data items having been specified to be excluded, until all the remaining data items are judged to be allocatable to the memory area.

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12. (Currently Amended) The <u>machine-implemented</u> data location determining method according to Claim [[9]] <u>10</u>, wherein

the allocation data selecting step further sequentially selects, after completing the selection, a data item from the excluded data items, the further-selection being made based on ~~the first criterion~~ <u>a descending order of an alignment of each data item, the alignment being a value representing a strength of a constraint on an allocatable location of a corresponding data item in a memory area,</u>

the allocation judging step further judges, each time a data item is further-selected, whether the further-selected data item is allocatable ~~to~~ <u>within a predetermined address range from the starting address of</u> another memory area, <u>which corresponds to the address range being accessible with a single instruction,</u>

the exclusion data specifying step further specifies, when the further judgment is negative, a data item to be re-excluded from the excluded data items out of all data items having been further-selected, the further specification being made based on ~~the second criterion~~ <u>a descending order of a size of each data item,</u> [[and]]

the allocation data selecting step repeats the further-selection from data items that remain after excluding all data items having been further specified to be re-excluded, until all the remaining data items are judged to be allocatable to said another memory area, and

when there are any re-excluded data items after completing the further-selection,

the allocation data selecting step further selects a data item sequentially from the re-excluded data items,

the allocation judging step further judges, each time a data item is further selected from the re-excluded data items, whether the further-selected data item is allocatable ~~to~~ <u>within a</u>

predetermined address range from the starting address of a yet another memory area, which corresponds to the address range being accessible with a single instruction, and

the exclusion data specifying step further specifies a data item when the further judgment is negative.

13. (Canceled).

14. (Currently Amended) The machine-implemented data location determining method according to Claim [[12]] 10, wherein

the allocation data selecting step further sequentially selects, after completing the selection, a data item from the excluded data items, the further selection being made based on the first criterion is a descending order of an alignment of each data item, the alignment being a value representing a strength of a constraint on an allocatable location of a corresponding data item in a memory area, [[and]]

the allocation judging step further judges, each time a data item is further-selected, whether the further-selected data item is allocatable within a predetermined address range from the starting address of another memory area, which corresponds to the address range being accessible with a single instruction,

the exclusion data specifying step further specifies, when the further judgment is negative, a data item to be re-excluded from the excluded data items out of all data items having been further-selected, the further specification being made based on the second criterion is an ascending order of a reference frequency of each data item, the reference frequency representing how frequently a corresponding data item is referenced,

the allocation data selecting step repeats the further selection from data items that remain after excluding all data items having been further specified to be re-excluded, until all the remaining data items are judged to be allocatable to said another memory area, and

when there are any re-excluded data items after completing the further-selection,

the allocation data selecting step further selects a data item sequentially from the re-excluded data items,

the allocation judging step further judges, each time a data item is further selected from the re-excluded data items, whether the further-selected data item is allocatable within a predetermined address range from the starting address of a yet another memory area, which corresponds to the address range being accessible with a single instruction, and

the exclusion data specifying step further specifies a data item when the further judgment is negative.

15 - 26 (Canceled).